## DEC 29 2004

## SEQUENCE LISTING

<110> Nadler, Lee M.
Hahn, William C.
Schultz, Joachim L.
Vonderheide, Robert H.

<120> CANCER IMMUNOTHERAPY AND DIAGNOSIS USING UNIVERSAL TUMOR ASSOCIATED ANTIGENS, SUCH AS THE TELOMERASE CATALYTIC SUBUNIT (hTERT), AND METHODS FOR IDENTIFYING UNIVERSAL TUMOR ASSOCIATED ANTIGENS

<130> 20363-015NATL <140> US 09/830,400 <141> 2001-07-20 <150> PCT/US99/25438 <151> 1999-10-29 <150> US 60/106,106 <151> 1998-10-29 <160> 73 <170> FastSEQ for Windows Version 4.0 <210> 1 <211> 9 <212> PRT <213> Homo sapiens Ile Leu Ala Lys Phe Leu His Trp Leu 5 <210> 2 <211> 9 <212> PRT <213> Homo sapiens <400> 2 Lys Leu Phe Gly Val Leu Arg Leu Lys 1 5

<210> 3 <211> 9 <212> PRT <213> Homo sapiens

```
Glu Leu Leu Arg Ser Phe Phe Tyr Val
<210> 4
<211> 9
<212> PRT
<213> Homo sapiens
<400> 4
Arg Leu Val Asp Asp Phe Leu Leu Val
         5
<210> 5
<211> 9
<212> PRT
<213> Homo sapiens
Phe Leu Trp Gly Pro Arg Ala Leu Val
                5
<210> 6
<211> 9
<212> PRT
<213> Homo sapiens
His Phe Leu Leu Trp Lys Leu Ile Ala
             5
<210> 7
<211> 9
<212> PRT
<213> Homo sapiens
<400> 7
Ala His Thr Lys Asp Gly Phe Asn Phe
                5
<210> 8
<211> 10
<212> PRT
<213> Homo sapiens
<400> 8
```

```
Lys Leu Thr Arg His Arg Val Thr Tyr Val
<210> 9
<211> 10
<212> PRT
<213> Homo sapiens
<400> 9
Leu Leu Leu Asp Thr Arg Thr Leu Glu Val
<210> 10
<211> 10
<212> PRT
<213> Homo sapiens
<400> 10
Phe Leu His Trp Leu Met Ser Val Tyr Val
<210> 11
<211> 10
<212> PRT
<213> Homo sapiens
<400> 11
Phe Leu Leu Lys Leu Thr Arg His Arg Val
                 5
<210> 12
<211> 10
<212> PRT
<213> Homo sapiens
<400> 12
Trp Leu Met Ser Val Tyr Val Val Glu Leu
                5
<210> 13
<211> 10
<212> PRT
<213> Homo sapiens
<400> 13
Gly Leu Phe Asp Val Phe Leu Arg Phe Met
```

1 5 10

```
<210> 14
<211> 9
<212> PRT
<213> Homo sapiens
<400> 14
Leu Leu Ala Arg Cys Ala Leu Phe Val
    5
<210> 15
<211> 9
<212> PRT
<213> Homo sapiens
<400> 15
Trp Leu Cys His Gln Ala Phe Leu Leu
<210> 16
<211> 10
<212> PRT
<213> Homo sapiens
<400> 16
Val Glu Leu Leu Arg Ser Phe Phe Tyr Val
               5
<210> 17
<211> 9
<212> PRT
<213> Homo sapiens
<400> 17
Phe Leu Trp Gly Pro Arg Ala Leu Val
           5
<210> 18
<211> 9
<212> PRT
<213> Homo sapiens
Leu Leu Phe Gly Tyr Pro Val Tyr Val
        5
```

```
<210> 19
<211> 9
<212> PRT
<213> Homo sapiens
<400> 19
Phe Leu Trp Gly Pro Arg Ala Leu Val
<210> 20
<211> 9
<212> PRT
<213> Homo sapiens
<400> 20
Gly Ile Leu Gly Phe Val Phe Thr Leu
1
                5
<210> 21
<211> 9
<212> PRT
<213> Homo sapiens
<400> 21
Tyr Ala Glu Thr Lys His Phe Leu Tyr
            5
<210> 22
<211> 10
<212> PRT
<213> Homo sapiens
Val Val Glu Leu Leu Arg Ser Phe Phe Tyr
                5
                                    10
<210> 23
<211> 9
<212> PRT
<213> Homo sapiens
<400> 23
Ile Ser Asp Thr Ala Ser Leu Cys Tyr
```

```
<210> 24
<211> 9
<212> PRT
<213> Homo sapiens
<400> 24
Glu Val Asp Pro Ile Gly His Leu Tyr
<210> 25
<211> 9
<212> PRT
<213> Homo sapiens
<400> 25
Cys Thr Glu Leu Lys Leu Ser Asp Tyr
1
                5
<210> 26
<211> 9
<212> PRT
<213> Homo sapiens
Gly Leu Phe Asp Val Phe Leu Arg Phe
<210> 27
<211> 9
<212> PRT
<213> Homo sapiens
<400> 27
Arg Leu Arg Glu Glu Ile Leu Ala Lys
<210> 28
<211> 9
<212> PRT
<213> Homo sapiens
<400> 28
Ile Leu Arg Gly Ser Val Ala His Lys
<210> 29
<211> 9
```

```
<212> PRT
<213> Homo sapiens
<400> 29
Tyr Val Thr Glu Thr Thr Phe Gln Lys
<210> 30
<211> 9
<212> PRT
<213> Homo sapiens
<400> 30
Gln Thr Val Cys Thr Asn Ile Tyr Lys
<210> 31
<211> 9
<212> PRT
<213> Homo sapiens
<400> 31
Lys Thr Phe Leu Arg Thr Leu Val Arg
<210> 32
<211> 9
<212> PRT
<213> Homo sapiens
<400> 32
Arg Leu Arg Glu Glu Ile Leu Ala Lys
<210> 33
<211> 9
<212> PRT
<213> Homo sapiens
<400> 33
Gly Val Gly Gly Pro Gly Gly His Lys
                 5
<210> 34
<211> 9
<212> PRT
<213> Homo sapiens
```

```
Ile Val Thr Asp Phe Ser Val Ile Lys
<210> 35
<211> 9
<212> PRT
<213> Homo sapiens
<400> 35
Thr Tyr Val Pro Leu Leu Gly Ser Leu
               5
<210> 36
<211> 9
<212> PRT
<213> Homo sapiens
<400> 36
Cys Tyr Gly Asp Met Glu Asn Lys Leu
               5
<210> 37
<211> 10
<212> PRT
<213> Homo sapiens
<400> 37
Phe Tyr Arg Lys Ser Val Trp Ser Lys Leu
               5
<210> 38
<211> 9
<212> PRT
<213> Homo sapiens
<400> 38
Ala Tyr Gln Val Cys Gly Pro Pro Leu
       5
<210> 39
<211> 9
<212> PRT
<213> Homo sapiens
<400> 39
```

```
Arg Tyr Leu Lys Asp Gln Gln Leu Leu
                 5
<210> 40
<211> 9
<212> PRT
<213> Homo sapiens
<400> 40
Ala Tyr Gly Leu Asp Phe Tyr Ile Leu
<210> 41
<211> 9
<212> PRT
<213> Homo sapiens
<400> 41
Arg Leu Phe Phe Tyr Arg Lys Ser Val
                5
<210> 42
<211> 9
<212> PRT
<213> Homo sapiens
<400> 42
Leu Gln Leu Pro Pro His Gln Gln Val
                 5
<210> 43
<211> 9
<212> PRT
<213> Homo sapiens
<400> 43
Arg Leu Gly Pro Gln Gly Trp Arg Leu
               5
<210> 44
<211> 9
<212> PRT
<213> Homo sapiens
<400> 44
Ser Leu Gln Glu Leu Thr Trp Lys Met
```

1 5

```
<210> 45
<211> 9
<212> PRT
<213> Homo sapiens
<400> 45
Asn Val Leu Ala Phe Gly Phe Ala Leu
<210> 46
<211> 9
<212> PRT
<213> Homo sapiens
<400> 46
Val Leu Leu Lys Thr His Cys Pro Leu
<210> 47
<211> 9
<212> PRT
<213> Homo sapiens
<400> 47
Phe Leu Leu Val Thr Pro His Leu Thr
                5
<210> 48
<211> 9
<212> PRT
<213> Homo sapiens
<400> 48
Thr Leu Thr Asp Leu Gln Pro Tyr Met
<210> 49
<211> 9
<212> PRT
<213> Homo sapiens
<400> 49
Ile Leu Ser Thr Leu Leu Cys Ser Leu
             5
```

```
<210> 50
<211> 9
<212> PRT
<213> Homo sapiens
<400> 50
Leu Met Ser Val Tyr Val Val Glu Leu
   5
<210> 51
<211> 9
<212> PRT
<213> Homo sapiens
<400> 51
Phe Leu Asp Leu Gln Val Asn Ser Leu
       5
<210> 52
<211> 9
<212> PRT
<213> Homo sapiens
<400> 52
Leu Leu Gly Ala Ser Val Leu Gly Leu
            5
<210> 53
<211> 9
<212> PRT
<213> Homo sapiens
<400> 53
Cys Leu Lys Glu Leu Val Ala Arg Val
           5
<210> 54
<211> 9
<212> PRT
<213> Homo sapiens
<400> 54
Leu Leu Asp Thr Arg Thr Leu Glu Val
                5
```

```
<210> 55
<211> 9
<212> PRT
<213> Homo sapiens
<400> 55
Gly Leu Leu Asp Thr Arg Thr Leu
1 5
<210> 56
<211> 9
<212> PRT
<213> Homo sapiens
<400> 56
Phe Leu Arg Thr Leu Val Arg Gly Val
       5
<210> 57
<211> 9
<212> PRT
<213> Homo sapiens
<400> 57
Tyr Met Arg Gln Phe Val Ala His Leu
       5
<210> 58
<211> 9
<212> PRT
<213> Homo sapiens
<400> 58
Arg Leu Thr Glu Val Ile Ala Ser Ile
               5
<210> 59
<211> 10
<212> PRT
<213> Homo sapiens
<400> 59
Gln Val Trp Lys Asn Pro Thr Phe Phe Leu
                5
<210> 60
<211> 10
```

```
<212> PRT
<213> Homo sapiens
<400> 60
Val Leu Gln Leu Pro Phe His Gln Gln Val
       5
<210> 61
<211> 10
<212> PRT
<213> Homo sapiens
<400> 61
Phe Leu Leu Ser Ser Leu Arg Pro Ser Leu
               5
<210> 62
<211> 10
<212> PRT
<213> Homo sapiens
<400> 62
Leu Leu Leu Arg Leu Val Asp Asp Phe Leu
<210> 63
<211> 10
<212> PRT
<213> Homo sapiens
<400> 63
Lys Met Ser Val Arg Gly Cys Ala Trp Leu
<210> 64
<211> 10
<212> PRT
<213> Homo sapiens
<400> 64
Arg Leu Cys Glu Arg Gly Ala Lys Asn Val
                5
<210> 65
<211> 10
<212> PRT
<213> Homo sapiens
```

```
Leu Leu Leu Arg Arg Val Gly Asp Asp Val
    5
<210> 66
<211> 10
<212> PRT
<213> Homo sapiens
<400> 66
Gly Leu Leu Gly Ala Ser Val Leu Gly Leu
    5
<210> 67
<211> 10
                                           (3)
<212> PRT
<213> Homo sapiens
<400> 67
Leu Leu Gln Ala Tyr Arg Phe His Ala
               5
<210> 68
<211> 10
<212> PRT
<213> Homo sapiens
<400> 68
Lys Leu Pro Gly Thr Thr Leu Thr Ala Leu
              5
<210> 69
<211> 10
<212> PRT
<213> Homo sapiens
<400> 69
Val Gln Trp Leu Cys His Gln Ala Phe Leu
    5
<210> 70
<211> 10
<212> PRT
<213> Homo sapiens
```

<400> 70

```
Ala Leu Val Ala Gln Cys Leu Val Cys Val
<210> 71
<211> 10
<212> PRT
<213> Homo sapiens
<400> 71
Arg Leu Val Asp Asp Phe Leu Leu Val Thr
<210> 72
<211> 10
<212> PRT
<213> Homo sapiens
<400> 72
Ser Ile Leu Ser Thr Leu Leu Cys Ser Leu
     5
<210> 73
<211> 10
<212> PRT
<213> Influenza A virus
<400> 73
Phe Leu Pro Ser Asp Cys Phe Pro Ser Val
                5
```